CLAIMS

1. A hydrophilic porous polymeric bead comprising a three dimensional open-cell lattice of a water-soluble polymeric material, the lattice having a porous structure providing in the bead an intrusion volume of at least about 3 ml/g.

2. A hydrophilic porous polymeric bead according to claim 1, wherein the intrusion volume is at least about 3.5 ml/g.

3. A hydrophilic porous polymeric bead according to claim 2, wherein the intrusion volume is at least about 4 ml/g.

4. A hydrophilic porous polymeric bead according to claim 3, wherein the intrusion volume is at least about 4.5 ml/g.

5. A hydrophilic porous polymeric bead according to claim 4, wherein the intrusion volume is at least about 5 ml/g.

6. A hydrophilic porous polymeric bead according to any one of claims 1 to 5 formed from an emulsion.

7. A hydrophilic porous polymeric bead according to claim 6, wherein the emulsion has an internal phase in the range of from about 50% to about 80%.

8. A hydrophilic porous polymeric bead according to any one of claims 1 to 7, wherein the lattice comprises more than one distinct pore type.

9. A hydrophilic porous polymeric bead according to any one of claims 1 to 8, wherein the bead comprises surfactant moieties dispersed throughout the lattice.

10. A hydrophilic porous polymeric bead according to any one of claims 1 to 9, wherein an active ingredient is disposed in the lattice.

11. A population of hydrophilic porous polymeric beads according to any one of claims 1 to 10, the population having a substantially uniform size distribution.

12. A method for producing a population of porous hydrophilic polymeric beads according to claim 11 comprising the steps of:

a) providing an emulsion comprising an aqueous phase, an organic phase and a hydrophilic polymeric material;

b) providing a fluid medium at a temperature effective for freezing the emulsion;

c) injecting the emulsion into the fluid medium to form frozen droplets;

d) isolating the droplets; and

e) freeze-drying the droplets to form beads.

13. A method according to claim 12, wherein the beads are chemically cross-linked by a cross-linking agent after freeze-drying.

14. A method according to claim 12 or claim 13, wherein the emulsion comprises an emulsifier.

15. A method according to any one of claims 12 to 14, wherein the emulsion comprises a continuous aqueous phase with the hydrophilic polymeric material dissolved therein and a discontinuous organic phase.

16. A method according to any of claims 12 to 15 wherein the polymeric material is selected from one or more from the following group of polymers; poly(vinyl alcohol), poly(ethylene glycol), poly(ethylene oxide), poly(vinyl pyrrolidone), poly(acrylic acid), poly(acrylic acid)-sodium salt, poly(acrylamide), poly(sodium styrene sulfonate), poly(2-acrylamido-2-methyl-1-propanesulfonic acid)

and polysaccharides.

17. A method according to any of claims 12 to 16, wherein the organic phase comprises a solvent selected from one or more of; heptane, n-hexane, isooctane, dodecane, decane, toluene, xylene, cyclohexane, mineral oil, dichloromethane, dichoroethane and tetrachloroethane.

18. A method according to any one of claims 12 to 17, wherein the aqueous phase comprises an active ingredient for incorporation into the beads.

19. A method according to any of claims 12 to 18, wherein the organic phase comprises a hydrophobic active ingredient for incorporation into the beads.

20. A method according to any of claims 12 to 19, wherein the freezing medium comprises an active ingredient for incorporation into the beads.

21. A method according to any of claims 18 to 20, wherein the active ingredient is selected from one or more from the following group; pharmaceutical actives, pharmaceutical salts, enzymes, dyes, oxidising agents, cleaning agents, fabric softeners, clothes care agents, bleaches, reducing agents, flavours, fragrances, metal nanoparticles, vitamins and nutraceuticals.